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Pulmonary rehabilitation closer to patients – feasibility and effectiveness study

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European Respiratory Journal 2019 54: PA565; DOI: 10.1183/13993003.congress-2019.PA565

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Abstract

Pulmonary Rehabilitation (PR) remains highly inaccessible to patients with chronic respiratory diseases (CRD). We assessed the effects of a minimal-resource community-based PR programme in patients with CRD.

Seventy-seven patients (48 male; 68 ± 11 yrs; $57.7 \pm 22.2\%$ FEV₁% predicted; 80.3 ± 19.6 FVC% predicted) with COPD (n=52), asthma (n=13), asthma-COPD overlap (n=3), interstitial lung disease (n=7), lung transplant due to COPD (n=1) and bronchiectasis (n=1) participated in a 12-week community-based PR programme. The modified Medical Research Council–dyspnoea scale (mMRC), Saint George's Respiratory Questionnaire (SGRQ), quadriceps muscle strength (QMS), 1-minute sit-to-stand (1-minSTS), six-minute walk test (6MWT), Brief Balance Evaluation System Test (Brief-BESTest) and Hospital Anxiety and Depression Scale (HADS) were collected pre/post PR. Differences were examined using the Student's t-test/Wilcoxon test and effect sizes (ES) were calculated. The number of patients improving above the minimal clinically important difference (MCID) was established, whenever a MCID was available.

Significant improvements were observed (Figure 1). The number of patients above the MCID were: 33 in mMRC (1 point), 47 in SGRQ (4 points); 41 in 1min-STS (3 repetitions); 50 in the 6MWT (25m), 18 in the Brief-BESTest (4.9 points) and 32 and 28 in the HADS Anxiety and Depression scores (1.5 points).

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| Measures | Pre-PR | Post-PR | p-value | ES |
|------------------------|-----------|-------------|---------|------|
| mMRC | 2[1-3] | 1[1-2] | <.001 | -.32 |
| SGRQ Total | 46±19.6 | 40.3±16.7 | <.001 | -.31 |
| HADS Anxiety | 6.7±3.8 | 5.8±3.4 | .006 | -.26 |
| HADS Depression | 6.6±4.1 | 5.8±3.8 | .040 | -.21 |
| QMS (kgf) | 30.1±8.1 | 33.4±7.6 | <.001 | .42 |
| 1-minSTS (repetitions) | 25.2±9.2 | 29.1±10.3 | <.001 | .40 |
| 6MWT (m) | 401±117.7 | 443.5±120.6 | <.001 | .36 |
| Brief-BESTest | 17.3±4.7 | 20.2±3.3 | <.001 | .71 |

Figure 1. Results from community-based pulmonary rehabilitation (n=77).

Values are presented as mean±standard deviation or median [interquartile range].

Significant values p<0.05.

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Cite this article as: European Respiratory Journal 2019; 54: Suppl. 63, PA565.

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